

Title (en)

COMPOSITIONS FOR SURFACE MINERALIZATION

Title (de)

ZUSAMMENSETZUNGEN ZUR OBERFLÄCHENMINERALISIERUNG

Title (fr)

COMPOSITIONS POUR MINÉRALISATION DE SURFACE

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Application

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Abstract (en)

[origin: WO2015171564A1] The invention provides novel compositions and methods of surface mineralization for metallic or ceramic implants and devices and the resulting enhancement of properties and performance in skeletal tissue engineering, orthopedic applications and dental care. The novel approach utilizes zwitterionic brushes (e.g., of poly(sulfobetaine methacrylate) or pSBMA) covalently grafted on the surface of titanium or its alloy substrates (e.g., Ti6Al4V) to promote surface-mineralization of hydroxyapatite with enhanced surface mineral coverage and mineral-substrate interfacial adhesion. The zwitterionic surface brushes, capable of attracting both cationic and anionic precursor ions during hydroxyapatite-mineralization, significantly increase the surface mineral coverage and significantly reinforce the attachment of the surface apatite crystals on the titanium alloy substrate which withstood supersonication treatment.

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